

Socioeconomic Characteristics of Small-Scale Farming Households: The Case from Ethiopia

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Abstract: The global focus has been shifted on food security and poverty alleviation. This study aims to investigate socio-economic characteristics of small-scale farming households in East Gojam, Ethiopia. Both primary and secondary data were collected. Primary data was collected from 309 randomly selected households. The result of the study showed that 90% of the households have more than four family members and landholding size below two hectares. Besides, 45% of respondents have four and above farm plots in a fragmented state. Crop production is the major economic activity which is highly dependent on rain-fed agriculture. The findings revealed that, cultivating small size of land relative to family size, lack of credit facilities, increase in price of agricultural inputs, erratic rainfall, instability of market price, lack of timely supply of agricultural inputs, lack of market information, lacks of road network, lack of market information and less availability of technologies are reported as the major problems of the current production system. The result on sex analysis also indicated that 94.8% of the respondents are males and 5.2% are females. However, division of labor is still cultural bounded and activities are gender specific. Women's were highly responsible for reproductive as well as home-based tasks. Therefore, designing strategies to improving the use of modern technologies, moving towards irrigation-based agriculture and expanding the use of water harvesting technologies would have paramount importance. More importantly, strategies should be designed to shift the ladies from investing more time at home to participate in outdoor activities.

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Introduction

Agricultural risks are prevalent throughout the developing countries and they are particularly burdensome to small-scale farmers (Okunmadewa, 2003; IFMR CIRM, 2008; Ayinde, 2008). Thus, in developing countries, a distinctive feature of agriculture is its level of risk, which is more apparent for those who entirely depend on agriculture for their income and subsistence (Ogunmefun and Achike, 2015).

World Bank (2015) reported that agriculture can help to reduce poverty for 78% of the world's poor, who live in rural areas and work mainly in farming. In this regard, it can raise incomes, improve food security and benefit the environment. The same source indicated that, growth in the agriculture sector is about two to four times more effective in raising incomes among the poorest compared to other sectors. It is one of the most important sectors in all developing countries. Agriculture is also crucial to economic growth: and the largest contributor to Africa's Gross Domestic Products (GDP), accounting for over 32 % of the total output. For the majority of the African countries except the oil producing, agriculture is also the major source of income. More precisely, about 75 % of Africa population engages in agricultural

cultivation (Salami and Arawomo, 2013; World Bank, 2015).

In the Ethiopian economy, agriculture is the main economic pillar and the overall economic growth of the country is highly dependent on this sector which is the main source of food and industrial inputs. According to the Central Statistical Authority of Ethiopia, the Agriculture sector represents about 42 % of the GDP and apparently about 85 % of the population gains their livelihood directly or indirectly from agricultural production (CSA, 2015). It also generates over 80 % of the country's export earnings (NBE, 2014). In spite of the huge agricultural potential, the growth in agricultural production has not been able to keep pace with that of the demand. Great proportion of cultivated land is held by subsistence farmers who produce about 97% of the national agricultural output (Welday, 1999). Because of the economy being dominated by agriculture, the weak performance of this sector has an adverse effect on other sectors of the economy. Even though this much population is involved in agricultural production and the country is known by its natural resource endowment, now a day's food insecurity has become a major problem in this country.

Due to the vital role of the farming sector for economic development of the country, information on

the socioeconomic characteristics of small-scale farming households is essential in order to plan and implement effective development strategies and formulate research interventions. Therefore, the main objective of this study was to analyze and provide information on socio economic characteristics of small-scale farming households. The specific objectives were to: (i) determine land ownership and occupational engagement; (ii) investigate the source of labor for farm and off-farm activities; (iii) determine the availability of access to credit and agricultural

inputs; (iv) rank problems according to their severity and suggesting possible solutions in priority; (v) determine gender roles in the farming communities with particular reference of East Gojjam zone, Ethiopia.

Methods

Description of the study area

East Gojjam zone is one of the eleven zones of the Amhara National Regional State. It is located in the North-western part of Ethiopia (Figure 1).

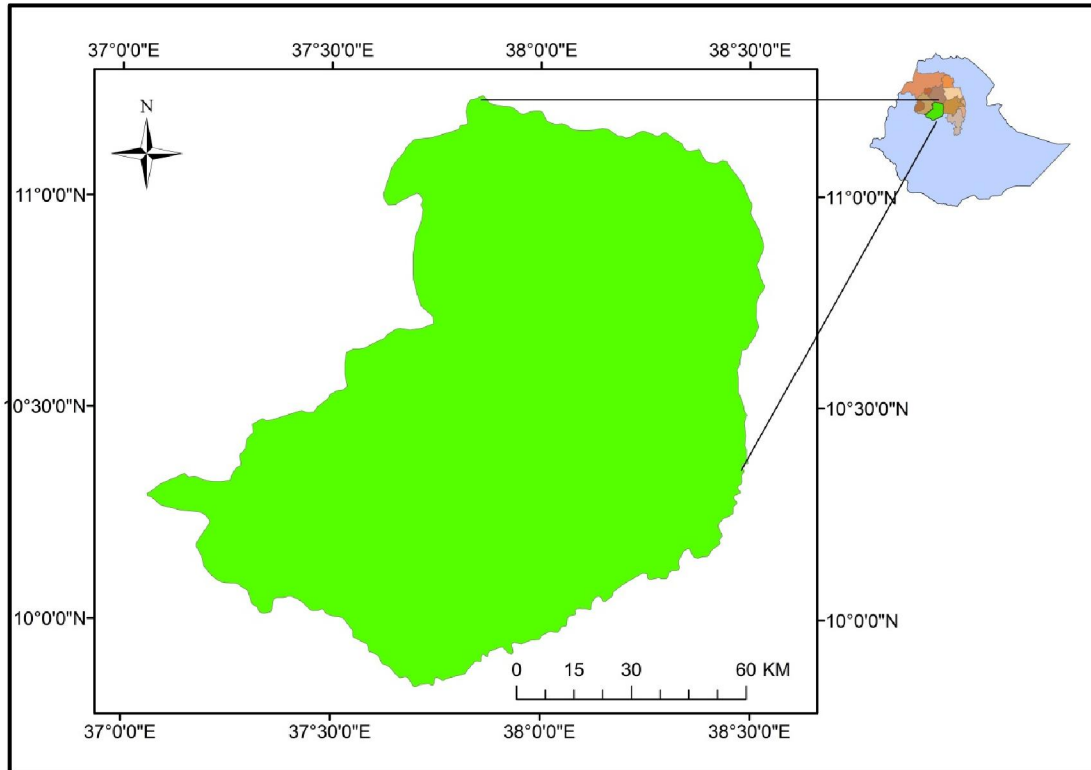


Figure 1 Map of the study area

The study area is bounded by West Gojjam zone to the west, by Oromia region (Wollega) to the south, by South Wollo zone to the East and South Gondar zone to the North. It has a total area of 14705.36 sq. km, with an altitude ranging from 500 to 4154 m.a.s.l. Its topography is estimated to be 7.8% mountainous, 24.9% rugged and 67.3% gentle slope. It has also four traditional agro climatic zones namely from low land to high land as 'Kolla', 'Woinadega', 'Dega' and 'Wurch' covering about 5.45%, 80.55%, 11.9% and 2.1% of the total area respectively. The area receives a mean annual rain fall of 900 to 1800 mm and annual temperature of 7.5 to 27C°. This zone is sub-divided in to 16 rural and 4 urban districts with 424 kebeles of which 37 are urban kebeles. The estimated land use pattern of the area shows that cultivated land

constitutes 33.67% of the total area. Forest land and grazing land account for 6.1% and 11.7% respectively. The rest 48.07% is used for other land use purposes & including marginal lands.

Sampling technique

A multi-stage sampling technique was used to select the respondents for the study. These were conducted in the following manner.

Stage I: The first stage of the level was selecting three districts using simple random sampling technique.

Stage II: At the second stage, three kebeles (the smallest administrative unit in Ethiopia) were randomly sampled from each of the three (3) districts. This gave a total of nine (9) sample kebeles. Finally, probability proportional to size random sampling

technique was used to draw individual sample households from each kebeles of the stratum.

Methods of data collection

Both primary and secondary data were collected for this study. Structured questionnaire were supposed to administer on 315 randomly selected sample households to conduct a formal survey. However, due to incompleteness of available data on six households, the final analysis was used based on the data collected only from 309 farm households'. The primary data were collected through a survey with the aid of interview schedule administered to the heads of the selected farming households with the assistance of well-trained enumerators. The enumerators have collected the data under the close supervision of the researchers. A pretest was carried out in order to standardize the survey instrument. Secondary data were obtained from the records of the pertinent government offices, published and unpublished reports to supplement the primary data.

Moreover, discussions were made with relevant expertise and other officials from the districts' Agriculture and Rural Development office.

The questionnaires were focusing on the existing land holdings and occupational engagement of each

responding households, labour source for both farm and off-farm activities, accessibility to credit and agricultural inputs, severity of problems in the farming community and gender specific questions.

Data analysis

Descriptive statistics such as frequency distribution, percentage and tables were used to analyze the quantitative data to have a clear picture of the characteristics of sample units, whereas the qualitative data were analyzed using summative explanation.

Results and discussion

Socioeconomic characteristics of the respondents

The result of the analysis on sex showed that there were more males (94.8%) than females (5.2%) of the respondents in the study area. Result on the marital status showed that greater proportions (94%) of the respondents were married while (1%) was single and (5%) were divorced. This implies that married people were more involved in production activities than other categories of different marital status. This could be because married men and women have greater household responsibilities and seek various ways to feed their families.

Table 1 Socio-economic characteristics of respondents

Variables	Frequency	Percentages	Mean
Sex			
Female	16	5.2	
Male	293	94.8	
Age			42.66
20-40	140	45.3	
41-60	152	49.2	
61-80	17	5.5	
Household size			5.67
1-3	33	10.7	
4-6	181	58.6	
7-9	93	31	
>9	2	0.3	
Age structure of family members			
0-14	651	37.2	
15-64	1075	61.4	
>64	32	1.9	
All age	1752	100	
Marital status			
Married	291	94	
Unmarried	3	1	
Divorced	15	5	
Education			
Illiterate	65	21.1	
Literate	244	78.9	
Land Holding Size			
≤1	162	52.4	
1.01-2	122	39.5	
2.01-3	23	7.4	

Variables	Frequency	Percentages	Mean
>3	2	0.7	
Livestock holding (TLU)			5.48
≤1	15	4.8	
1.01-2	24	7.8	
2.01-3	45	14.6	
3.01-4	31	10	
4.01-5	52	16.8	
>5	142	46	
No. of plots			3.56
1-3	171	55.3	
4-6	127	41.1	
7-9	9	2.9	
10 -11	2	0.7	
Engagement in renting out of land			
No	273	88.7	
Yes	36	11.3	
Reasons for Rent out land			
Labour shortage	8	22.2	
Oxen shortage	22	61.1	
Lack of capital	3	8.3	
Distance of farm	2	5.7	
Others	1	2.9	
Engagement in renting in of land			
No	142	45.9	
Yes	167	54.1	
Main sources of additional land			
Rent	47	15.2	
Sharing	241	77.9	
Both	21	6.8	
Availability of family member who participated in off-farm activities?			
No	237	76.7	
Yes	72	23.3	
Reasons for not participated on off-farm income			
Busy in agricultural work	98	41.4	
No interest	55	23.2	
No attractive income	28	11.8	
Have enough income	14	5.9	
No off-farm work	42	17.7	

Source: Authors' survey results

Result of age analysis indicated that respondents between 41-60 years (49.2%) ranked the highest, while those greater than 60 years (5.5%) was the least. The age group ranging from 21-40 is found to be 45% which means that number of active work force is found within the age of less than the relatively inactive work force. Apparently, the age structure of family members indicated that 37.15% of them were below the age of 15, 61.36% economically active (working age groups) and the rest 1.82% were aged. The ratio of persons in the dependent age group to those of the working age group provides a useful approximation of economic dependency. The crude dependency ratio of households was found to be 0.64 (*i.e.* for each 100 persons in the production age group, there are about

64 dependents to be supported) which is less than the entire zone, which is reported as 0.88.

The family size of the sample households ranges from 1 to 11 persons, with mean of 5.67 persons and standard deviation of 1.76. Greater proportion household size (58.6%) of the total respondents has household size between 4-6 persons.

Result of educational qualification showed that majority (78.9%) had educational levels ranging from the ability to read and write to 10th grade while the least (21.1%) of the total respondents are illiterates (cannot read and write). This tells us the importance of creating access for informal education for the farming communities so that they would be able to engage in

intensive farming and other off-farm activities which helps them to ensure food security at household level.

Land ownership and occupational engagement

Farming is the main economic activity in the study area. The results of the study showed that landholding, ranges from 0.125 ha to 4.125 ha with a mean of 1.22 ha and standard deviation of 0.57 ha. The farm size for the majority farming households (52%) falls between 0.13ha and 1 ha. However, only about 8% of the sample households have a farmland of more than two hectares that is followed by fragmented land holding. The number of own farm plots for sample households was ranging from one to eleven, where the majority of households (55%) fall into one to three plot category. Fenwick & Lyne (1999) reported that lack of access to viable arable land and the absence of a land rental market (due to tenure insecurity) are disincentives to investment in agriculture.

In this regard, we can imagine that how land holding size and tenure security can provide adequate income for the ever-increasing family size, with the current production system which is highly depending on rainfall (Nieuwoudt & Vink, 1989). This system calls to use intensive farming activity with the use of modern technologies and also expanding irrigation practices to produce more than two times per year.

The result also showed that share-cropping and renting are the major sources of acquiring additional arable land. Principally, widowed female-headed households, the aged members of the society and divorced females are the major sources of rental land. In fact, renting cost of the land depends on the type of the land (dry or irrigable) and the fertility of the soil. Thus, it is reported that 54.05% and 11.3% of respondents engaged in renting in and out land respectively.

Animal husbandry is another means of livelihood in the study area. The average size of livestock in Tropical Livestock Unit (TLU) was found to be 5.48 for the sampled households. About 63% of the respondents reported that they have more than 4 TLU sizes of livestock.

In addition to sale of their permanent farm products, some farmers are able to get income from involving in off-farm activities. For instance, a few members of the respondents (23.3%) involve in off-farm activities including petty cash trading. Such farmers were also able to engage in purchasing of crops, sheep, goat, poultry and other farm products where price is reduced and apparently sell such products at a time of having potential markets with relatively high price that could maximize their benefit. On the other hand, the majority of farming community (76.7%) did not participate in off-farm activities. The fundamental reasons for not participating in off-farm

activities could be attributed to lack of cash availability, busy in agricultural work, lack of knowledge for the presence of off-farm activities, fear of risk and lack of experience in trading.

Sources of labor

Concerning labour, family members of the households are the main sources of labor force who engaged in day-to-day activities particularly for the implementation of agricultural activities. Besides, different sources of labour have been practiced to alleviate shortage of labor at peak labor demand periods. These include hired labor, '*wonfel* and *debo*. *wonfel* and *debo*'. These are Amharic terms used to describe group works in the farming community of rural Ethiopia. Accordingly, households hire laborers at a daily, yearly and contractual basis, though the demand for labor varies according to the cropping calendar. Labor shortage is more critical at the time of weeding and harvesting which the result of this survey supported that about 14% and 71% of respondents reported their high demand of additional labour at the time of weeding and harvesting respectively. The extent of labor shortage also varies in different agro-ecologies where the shortage is sever in the lowlands (traditionally called *Kolla*), due to the fact that, farmers living around such areas are able to possess larger area than that of highlands (traditionally called *Dega* or *Woinadega*). Hence, additional labor is needed to alleviate their problem in the form of hired labor which the employment base could be agreed either on a daily payment or contractual.

Access to credit and agricultural inputs

The result showed that only 36.2% of the total interviewed households borrowed money from credit institutions and only 30 % of respondents need credit for the future demand of purchasing fertilizer, seed, livestock, land rent and petty trade. Respondents also reported that high rate of interest, group collateral requirement, the lengthy bureaucratic process and the duration and time of the year borrowers requested to return the money have made the credit service unattractive. A socioeconomic survey conducted by BoFED (2004) in 50 districts of Amhara national regional state (ANRS), also shown that only 28% of the interviewed households borrowed money from credit institutions.

It is clear that the availability of credit and modern inputs is an integral part of the extension system required to boost agricultural production through the use of modern agricultural technologies like fertilizer, improved seeds, and farm implements. However, most of respondents (57%) revealed that the supply of inputs at required time, place, quality, quantity and reasonable price is a problem especially from the supplier side of improved seed such as Maize, tef and wheat. This condition is an indicator

which leads to a need for strengthening the linkage (inter-sectoral relationship) between input supply sector and agricultural sector.

For that reason, the Regional Government Bureau of Agriculture and Natural Resource increased the number of development agents (DAs) from one to three per *Kebele* with different field of specialization and improved the extension system from focusing on the productivity of a farm to bringing attitudinal change of the farmers (BoFED, 2005). With the presence of development agents in each kebele, it is expected that sample farmers in the study area would have an access to extension services through the DAs, attending field days and training. In line with this intervention, it is reported that about 83% of sample households had been visited by development agents from one to three times per month. The average monthly frequency of extension services/visits/ was found to be 0.83 with a standard deviation of 0.38.

Problem ranking and setting of priorities

It is believed that land is the most preferable asset in the farming society and every investment intervention in Ethiopia in general and in the study area in particular. Likewise, the results of this study prominently showed the importance of land as a top priority where respondents' ranking of problems indicated that the major problems in the current production system is mainly attributed to: (i) small size of landholding relative to family size followed by (ii) lack of credit facilities, (iii) an increase in price of agricultural inputs from time to time, (iv) erratic rainfall (early onset and offset), (v) instability of market price for the product as well as lack of timely supply of inputs, (vi) lack of market information, (vii) lack of training and less availability of technologies, (viii) lacks of infrastructure, (ix) land degradation (x) insect and disease problems (Table 2).

Table 2 Identified General problems and their ranking in order of priority in the study area

No	Problems	Priority Rank
1	Lack of credit facilities which are affordable by farmers,	2
2	Lack of timely supply of inputs	5
3	An increase price of agricultural inputs from time to time	3
4	Instability of market price for the product	5
5	Lack of market information	6
6	Lacks of infrastructure (Road network, transport),	8
7	Less availability of technologies	7
8	Small size of land holding relative to family size	1
9	Lack of training	7
10	Decline of Soil fertility	9
11	Deforestation	9
12	Erratic rainfall (Early onset and offset)	4
13	Insect pest problem	10
14	Animal disease & lack of medicines	10
15	Absence of DVM in the area	10
16	Health related problems (No health clinic &	8

In Ethiopia, land is legally owned by the state and the community. The latest land redistribution in Amhara region was done in 1996/97. The frequency of redistribution is a function of population pressure, change of the government and development of the sector that absorbs rural labor. However, land cannot be sold, and used as collateral. Households have only the right to use (cultivate the land, rent) and transferred to others through inheritance. Arable land is allotted privately while some grazing lands are communal property. In fact, the arable land could be used for grazing after the crop is harvested. As a traditional rule, young male could acquire land from his family when he is forming a new family while a female cannot. Very recently, the arable land size per household has reduced and the number of fragmented parcels operated was increased. The problem of land

shortage is highly pronounced in the highlands, which is linked to high population growth in such areas. As a result, many farmers are forced to make deforestation; very steep areas came in to under cultivation and use of grazing land in search of additional arable land. It is expected that farmers make fewer long-term land improvements if they feel that the government in the future will be redistributed so that the presence of land security may increase land improvement practices.

In this study, we have noticed that there are a lot of gullies in a cultivated land, use of very steep land for arable land, unwise use of community forest & unwise use of grazing lands. This showed that the members of the current generation are running to satisfy their immediate needs without considering the needs and aspirations of the future generation.

Seasonal price variation is the main problem of farmers which is also associated to high instability of price of agricultural products. In the study area, the price of agricultural products would be higher at the time before harvest, but decline at the time of harvesting and would increase again starting from June. This is because of high demand of cash at the time of harvest (December – January) for credit payment, tax, ceremony and clothing for the family members which demand them to sell their products immediately after harvest when the price of products decline due to excess supply in the market. Besides, this is also the period of many religious and cultural festivals like wadding, Christmas and Epiphany which incurred costs on the farmers. Thus, the periodic ups and downs of the market price of agricultural products lead to many people to be food insecure. This calls for designing the market strategies which encourages and attracts producers to produce more crops.

Households get price information from those who participated in the market during previous days. These may include family members, friends, relatives and neighbors. Traders have more information and communication regarding crop and livestock price. Households negotiate the price with traders and the decision to set the price will revolve around the price informed by the traders. The farmers in the study areas have no collective bargaining power except having little information of the market. Although there are multipurpose farmers' cooperatives, they are not that much functional in keeping the benefit of farmers by playing their role in the market mediation resulted in that farmers are becoming price.

Gender roles

In the study area, the number of women constitutes almost more than half of the population and they have substantial role in agricultural and non-agricultural activities. The division of labor is still cultural bound and it is mainly on the basis of age and sex relation. As a result, women are highly responsible for reproductive as well as home-based tasks. Moreover, they are equally participating in community management activities such as '*Iddir*', '*Equb*' and '*Mahiber*'. These are Amharic terms of social gatherings, indicating social institutions established among a group to help each other. Women's are highly involved in home-based activities like preparation food, child management, fetching water and collection of fuel wood. These activities limit their participation to actively engage in agricultural works. The survey results showed that as a whole the number of tasks performed by women is greater than that of men (Table 3) revealed that rural women faced a problem of work overload.

This finding also gives a clue for planners and decision makers to design possible alternative strategies to reduce their workload on home activities and improve their participation in agricultural interventions. The survey made by BOFED (2006) also indicated that, women residing both in urban and rural areas are constrained by a number of problems with regard to access to resources, social services and income generating opportunities as well as they also are not in a position to make some benefit out of the fruits of socioeconomic and political advancements.

Table 3 Gender division of labor

Role of women		Role of men	
Reproductive Tasks	Productive Tasks	Productive Tasks	Reproductive tasks
Child caring		Land preparation	
Washing cloths	Weeding	Planting	
Fire wood collection	Preparing threshing	Weeding	Collection of fire wood
Cleaning the house	Land preparation	Harvesting	
Pounding grains	Milling grains	storage	
Cooking food	Transporting the harvested crops	Milling grains	
Water fetching			

Despite the fact that women took greater workload as compared to men, they do not have an equal power of control over resources that they possess. Largely the control over resources is left for men. As indicated in Table 4, during livestock and large amount of crop sale, the men have greater power

to control or to decide on how to use the income earned. However, small value resources (like butter, egg, hen, milk) are under the control of women. Generally, men enjoy the highest power to control resources over women and have the power to make decision on the most parts of family affairs.

Table 4 Access to and Control over Resources

Resources controlled by men	Resources controlled by women's under Male headed
Land	
Seed	
Credit	Milk
Large amount grain sale	Butter
Farm implements	Egg
Honey	Hen
Oxen	Small amount grain sale
Dairy cow	Grain (food)
Live animal sale	
Animal power	

Conclusions

In the study area, agricultural production is highly affected by small size of land relative to family size is where this problem is also accompanied by underemployment, lack of credit facilities, an increase price of agricultural inputs, erratic rainfall (early onset and late offset), instability of market price for the product, lack of timely supply of inputs, lack of market information, lacks of infrastructure (load network), lack of market information, and less availability of technologies.

The production system of the study area is highly dependent on rain-feed agriculture and hence, productivity fluctuates with the amount and distribution of precipitation. In this regard, we can imagine that low land holding size coupled with other prominent factors mentioned above cannot support the ever increasing family size. Therefore, moving towards irrigation-based agricultural development and intensifying the use of water harvesting technologies would benefit to supply adequate food production. Principally, farmers should be supported both financially and technically to adopt intensive crop production techniques. Expansion of off-farm activities in the rural area should be consider by planners, implementers and policymakers soas to create job opportunity and to improve the labour efficiency.

Moreover, giving attention to introduce improved varieties of different cash crops will assist to diversify the cropping pattern and reduce influence of weather risk in the farming community and rather will increase the income of farmers thereby improving peoples' livelihood. Availability of credit and modern inputs are also an integral part of the extension system required to boost agricultural production through the use of modern agricultural technologies like fertilizer and improved farm implements. Gender based engagement of the production system is not only important but also mandatory as agricultural sector demands high amount of labour in its production

process. But, the division of labor is still cultural bounded and it is mainly gender specific. As a result, the women are highly involved in home based activities like preparation food, child management, fetching water and fuel wood collection. These types of responsibilities restrict their participation in field-based agricultural works as well as socio-cultural and socio-political engagements. Therefore, strategies should be designed to shift the ladies from investing more time at home activities to participate in other production and outdoor activities. Informal education access would be the best solution to strengthen them to improve their awareness and knowledge.

Conflict of interest

The authors declare that they have no conflict of interests.

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